

(PCT Article 36 and Rule 70)

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/019517

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-24 as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 2-4, 6, 7, 11, 16 as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1, 5, 8-10, 12-15 received by this Authority on 29.11.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets fig. 1-13 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, nos. 17, 18
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement   |                    |     |
|-----------|---|--------------------|-----|
| 1.        | Statement   |                    |     |
|           | Novelty (N)   | Claims <u>1-16</u> | YES |
|           |   | Claims _____       | NO  |
|           | Inventive step (IS)   | Claims <u>1-16</u> | YES |
|           |   | Claims _____       | NO  |
|           | Industrial applicability (IA)   | Claims <u>1-16</u> | YES |
|           |   | Claims _____       | NO  |
| 2.        | Citations and explanations (Rule 70.7)  |                    |     |
|           | <p>The inventions set forth in claims 1 to 4, 8, 9 and 12 to 16 involve an inventive step in relation to the documents that are cited in the international search report. Techniques wherein the signal light pulses that were input are subjected to linear chirping and are thereafter made to traverse a dispersion medium so as to undergo optical Fourier transformation are well known (refer to document 2 and the like), and document 1 discloses an optical Fourier transformation technique wherein an optical Kerr medium is used as the means for controlling the chirping of the signal light pulses. However, the optical Fourier transformation technique wherein an optical Kerr medium into which a control light pulse with a shape expressed by a quadratic function or a parabola has been introduced is used as the means for subjecting the input signal light pulses to linear chirping is not disclosed in any of the documents that are cited in the international search report, and would not have been obvious to a person skilled in the art.</p> <p>The inventions set forth in claims 5 to 7, 10 and 11 involve an inventive step in relation to the documents that are cited in the international search report. The optical Fourier transformation technique wherein a generator for</p> |                    |     |

| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement  |
|-----------|--|
|           | <p>generating quadratic function-type optical pulses, which is equipped with dispersion reducing fibers for reducing the absolute value of the normal dispersion in the longitudinal direction, is used as the means for generating the control light pulses that are introduced into the optical Kerr medium is not disclosed in any of the documents that are cited in the international search report, and the feature in question would not have been obvious to a person skilled in the art.</p> <p>Citations:</p> <p>Document 1: L. Kh. MOURADIAN et al., "Spectro-Temporal imaging of Femtosecond Events," IEEE Journal of Quantum Electronics, Vol. 36, No. 7, (2000), pages 795 to 801</p> <p>Document 2: B. H. KOLNER, "Space-Time Duality and the Theory of Temporal Imaging," IEEE Journal of Quantum Electronics, Vol. 30, No. 8, (1994), pages 1951 to 1963</p> <p>Document 3: V. I. KURGLOV et al., "Self-Similar Propagation and Amplification of Parabolic Pulses in Optical Fibers," Physical Review Letters, Vol. 84, No. 26, (2000), pages 6010 to 6013</p> <p>Document 4: D. ANDERSON et al., "Wave-braking-free pulses in non-linear optical fibers," J. Opt. Soc. Am., B, Vol. 10, No. 7, (1993), pages 1185 to 1190</p> <p>Document 5: JP 05-265057 A (Nippon Telegraph And Telephone Corp.), 15 October 1993 (Family: none)</p> |